

# PyroGenesisys

Nearly two-thirds of the world population's without electricity access lives in sub-Saharan Africa. Sub-Saharan African communities can use solar power, but it is expensive and many people who live here cannot afford a solar home kit.

Clean energy start-up PyroGenesisys is developing low-cost, environmentally-friendly technology to transform the way off-grid communities in Nigeria receive electricity with its innovative PyroPower technology.

PyroGenesisys' chief executive officer, Simon Ighofose, said: "PyroPower turns agricultural waste materials into renewable heat and electricity using an advanced thermal technology called pyrolysis, meaning no more fossil fuels.

"Waste agro-residues are converted into biochar smokeless fuel briquettes for cooking, replacing firewood and wood-derived charcoal use, a cause of severe deforestation and human health issues."

Nigerian-born Simon had the idea on a visit to Nigeria in 2011 after experiencing the electricity supply issues. An Aston University research paper on the effectiveness of pyrolysis as an energy conversion technology using agricultural waste inspired Simon to study chemical engineering to create an affordable, sustainable solution.

Now, PyroGenesisys leads a consortium that includes the University of Leicester, African Agricultural Technology Foundation (AATF), Mobinet, Babban Gona Farmer Services, ICMEA-UK and Koolmill Systems.

Simon said: "Working with the consortium, we'll test the case for installing our first PyroPower pilot plant in Nigeria, using satellite geo-spatial data analysis to identify suitable locations for future PyroPower installations.

"We've set an initial target of installing 100 commercial systems to generate clean, low-cost electricity over the next two years. We're also looking at selling electricity using Mobinet's SIMPAY mobile payment system in Nigeria for cashless transactions."

In 2019, PyroGenesisys won a £46,342 Innovate UK grant as part of Energy Catalyst Round 6. The total grant to the consortium was £224,697. PyroGenesisys has also submitted two Round 7 applications for a feasibility study to evaluate site deployment in Ethiopia and Liberia.

The company is in discussions with a major blue-chip Nigerian PLC to roll out the PyroPower technology to 100 sites across Nigeria. They are also working with Koolmill to provide off-grid high-quality rice milling.

Simon said: "The Innovate UK grant allowed us to work with our manufacturing partner ICMEA-UK to redevelop the technology to fit waste conversion and power generation inside one container. Containerisation means that we can put it on a ship and send it anywhere in the world, so it's quick and easy to

deploy.